

## NISTTech

### Article With Gradient Property And Processes For Selective Etching

---

#### Abstract

---

An article includes a substrate; and a coating disposed on the substrate that includes a microporous layer; a gradient in a density of a volume of the microporous layer, and a plurality of dendritic veins that are anisotropically disposed in the coating. A process for forming a coating includes disposing an activating catalyst on a substrate; introducing an activatable etchant; introducing an etchant oxidizer, performing an oxidation-reduction reaction between the substrate, the activatable etchant, and the etchant oxidizer in a presence of the activating catalyst, the oxidation-reduction reaction occurring in a liquid medium including the activatable etchant; and the etchant oxidizer, forming an etchant product comprising atoms from the substrate; removing a portion of the etchant product from the substrate; and forming a dendritic vein in the substrate to form the coating, the dendritic vein being anisotropically disposed in the coating.

#### Status of Availability

---

This invention is available for licensing exclusively or non-exclusively in any field of use.

Last Modified: 06/01/2015